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MONGOLIAN FOLKLORE EXPRESSED THROUGH MUSIC TECHNOLOGY
ORIGINAL MULTIMEDIA SOUNDTRACK *ON HORSEBACK*

A Thesis

Submitted to the Graduate Division
of the Mary Pappert School of Music

Duquesne University

In partial fulfillment of the requirements for
the degree of Master of Music in Music Technology

By

Xinlei Chu

May 2014

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Xinlei Chu

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ABSTRACT

MONGOLIAN FOLKLORE EXPRESSED THROUGH MUSIC TECHNOLOGY ORIGINAL MULTIMEDIA SOUNDTRACK *ON HORSEBACK*

By

Xinlei Chu

May 2014

Thesis supervised by Lynn Emborg Purse

I returned to my hometown and recorded Mongolian folk music— Mongolian Long Song and Mongolian Throat Singing. I wanted to combine technology and traditional folk music and write an electronic piece based on Mongolian vocal materials. I used what I've sampled, manipulated the sounds, composed the music, gathered the videos together and created this multimedia piece – On Horseback. The names of the four movements – Sand, Cloud, Water, and Fire – are four elements that I chose to represent the lifestyle in Inner Mongolia.

This thesis covers the journey of how I created this piece. I've explored many variations of technology such as sound sampling, mixing, and video editing. I've also gained the chance to bring traditional Mongolian folk vocal music out of my hometown and present it in my own work.

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Background

There are 56 different ethnic groups in the People's Republic of China, the Han people are the largest ethnic group, which has 91.59% of the population. Besides the Han, 55 other ethnic groups are recognized in Mainland China, numbering approximately 105 million people, mostly concentrated in the northwest, north, northeast, south, and southwest. After the foundation of China in 1949, the Chinese government has published many policies to encourage the ethnic mergence; it has also built five independent provinces for the Mongolians, the Uygurs, the Tibetans, the Zhuangs, and the Huis.

Figure 01 Map of China



The Inner Mongolia province lies on the very north, adjacent to Outer Mongolia. The Mongolian nationality is one of the main races in northeast Asia. The word “Mongolian” was originally a tribal name, means “the eternal fire.” The ancient

Mongolians believed in Mongolian Shamanism, which praises the mountains, the rivers, the grassland, and all the living things of Mother Nature. They kept a quite simple life style even in modern times. They have their language, their own foods, clothes, holidays and cultural traditions. They travel by riding the horses and they call themselves the nation on horseback. They also have their own folk music that is very genuine and consonant.

Even though both traditional Mongolian music and Han folk music are pentatonic, they are completely different in content and expressive style. Not all Chinese folk music shares the same flavor and characteristic since there are so many ethnic groups to consider. The most significant feature of Mongolian folk music is Throat Singing, which is an art form that carried down by the Mongolian people for generations. Another signature form is the Mongolian Long Song.

Mongolian Throat Singing (Khoomei) is a splendid overtone singing style in which the singer uses a unique technique to produce more than one tone at the same time and controls them into a polyphonic melody. Most of the time the singer uses the vocal cord to produce a lower tone, which is the “normal” tone; the other tone is the overtone, which can be 4-6 octaves higher by the oral cavity. The singer will form the overtone into a melody by controlling the breath, the shape of the mouth, and vibration source of resonance. It is easier to change the overtone while the base tone is sustained, than to change the base tone while having the overtone lasting. Sometimes the overtone voice is very clear, and sounds like a whistle or a metallic sound. Sometimes the overtone notes

are not that obvious or high pitched, but combine with the lower tone and together they produce a very interesting and powerful timbre of the human voice.

According to historical data, this “guttural art” which has thousands of years of history was once popular in Inner Mongolia, south Siberian Tuvan, Mongolia, Altay and Khakass. Nowadays it is mostly spread in the Inner Mongolia province of China. On May 20th, 2006, approved by the Chinese council, Khoomei was added in the first national nonmaterial cultural heritage list. On October 1st, 2009, Chinese-Mongolian Khoomei was selected into the world’s non-material cultural heritage protection list.

I have heard that there are female Khoomei singers, but I’ve never met one since it is very uncommon. The Mongolian Long Song is more popular for women. The reason why it’s called “long” song is because the songs usually don’t have many lyrics, or after the lyrics are sung over, the voice continues. The singer will add some imitative words such as” hmm”, “ah ha hey” in the melody to improvise, and the melody will go up and down in a slow speed, free tempo and wide range. Since the purpose is to make the melody flow, the singers will add a number of grace notes too. But the most important part is to add coloratura by jittering the vocal chords during the long notes. This technique gives a unique texture to the voice. The Long Song relies on the singer's emotional freedom extension, the style and singing methods have a vast, roundly grassland folk characteristic.

Other than these two signature art forms, the Mongolians also have folk musical instruments such as the Horse-head cello, the Mongolian guitar, and folk dancing form Mongolian Bowl Dance. Carrying the lineage and growing up in Inner Mongolia,

Mongolian folk music has a huge influence on me. I intend to inherit the tradition and add new concept to my music by using modern technology. Therefore I recorded Throat Singing and Long Song when I went back to China in the summer of 2013, and composed the 4 movement piece, On Horseback.

Preparation

1. Sampling

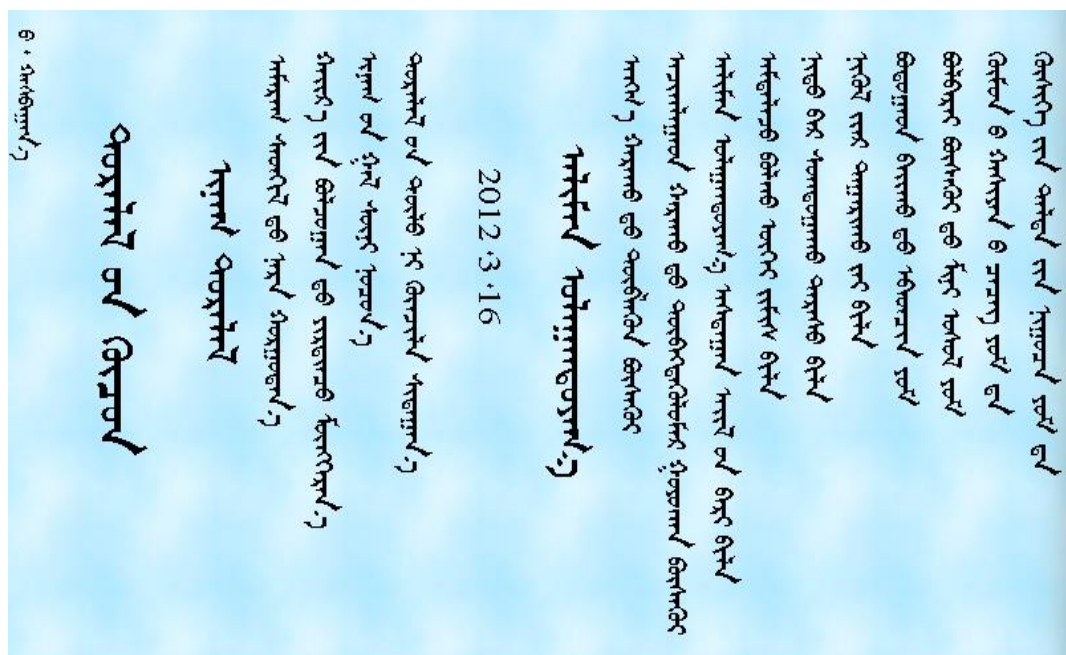
I found one female Long Song singer named Alifu and one male Throat singer named Bai Yincang in my hometown Chi Feng. I prepared a poem that was written by a Mongolian writer named Hasibagen. The name of the poem is *The Powerful Love*. I asked Alifu and Bai to read three sentences from the poem for me in Mongolian, which means “The inspiring and gentle eyes are love, the light that warms up our true faith is love, the running water that mothers the world is love.” I also rented a small studio for the recording. The equipment in the studio was not top professional calibre since it is a small city. They had a Shure SM 58 microphone, a recording room and a pair of Icon DT monitor speakers in the monitor room. Luckily, I know how to use Nuendo, which was the only recording software that they had on their PC. We recorded for three hours in total, recorded each of them separately with several breaks in between so they could rest and listen to it. I asked both of them to sing whatever was on their minds, whatever they would like to sing the most and could present them at their best. They were a little overwhelmed because it was the first time they’ve been asked not to sing any particular songs. Frankly I had no idea what I would do with the piece by that time, I just wanted to sample as much as

possible. I had a 133.6 MB of 44.1Hz/16 bit waves of Throat Singing and Long Song by the end of the day.

Figure 02 Alifu and Bai Yingchang



Figure 03 *The Powerful Love* written in Mongolian



2. Pre-Editing

After I took the samples back with me to the United States in the fall of 2013, I edited them in Pro Tools. I made the first cut of the waveforms from the whole file, simply separated them into smaller sections and cut the blank -noise off, normalized the waves, adjusted EQ, and batched file names. Professor Bill Purse gave me a very useful tip that I should not add any other effects, especially reverb. He advised to add them during post production mixing so that when I changed the pitch or warped the sound, the reverb would change with the sound together, which was not desirable. Therefore, I left everything unprocessed.

When I made a second cut of the files, I listened to each sound file for several times, looking for elements that I could use as smaller parts for the piece, such as: one syllable of a word from the poem, two seconds of the singing, the part only when Alifu jitters her vocal chord, or even one breath. These details could be materials to build up a pitched instrument by using software samplers Mach 5 and Logic Pro, or a virtual percussion instrument sound. After the second cut, I had twenty eight small songs and sixteen even smaller syllables.

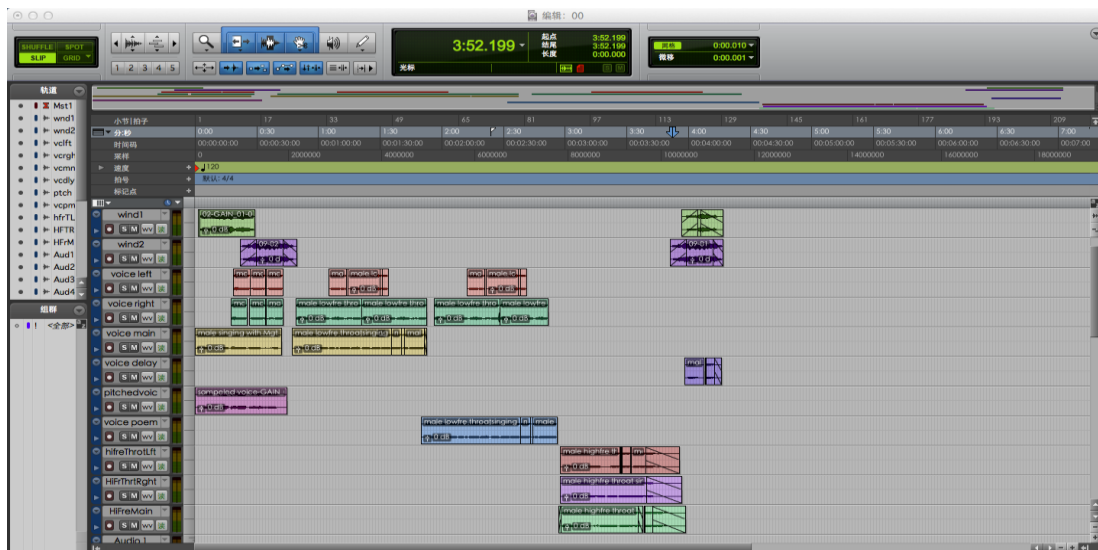
Production

A. *Sand*

I started to edit the clips again in Pro Tools, to develop “melodic elements.” Since the piece is based on voices that were already recorded, I wanted the voices to

lead the music so I could write music around the main character. First, I experimented with the male voices, tripling the low frequency Throat Singing on the left, right. Second, I panned these additional low frequencies with tiny volume and speed differences to follow the male voice of the poem. This combination of sounds gave the whole piece a vast and raw beginning, which reminded me of the desertification of grassland. Therefore I decided to name the first movement *Sand* and added some resources of the sound of the wind. A man's voice repeating "The inspiring and gentle eyes are love, the light that warms up our true faith is love, the running water that mothers the world is love" in the desert, sounds like he is telling himself not to give up until he finds the grassland for which he's been longing. At the end I placed the high frequency Throat Singing files; based on the placement of the different frequencies of the voice, I created an A+B form first movement.

Figure 04 Sound editing *Sand* in Pro Tools



The next thing I did was to export the file from Pro Tools and import the file into Logic Pro, so that I could compose the rest of the music. Since I already had a

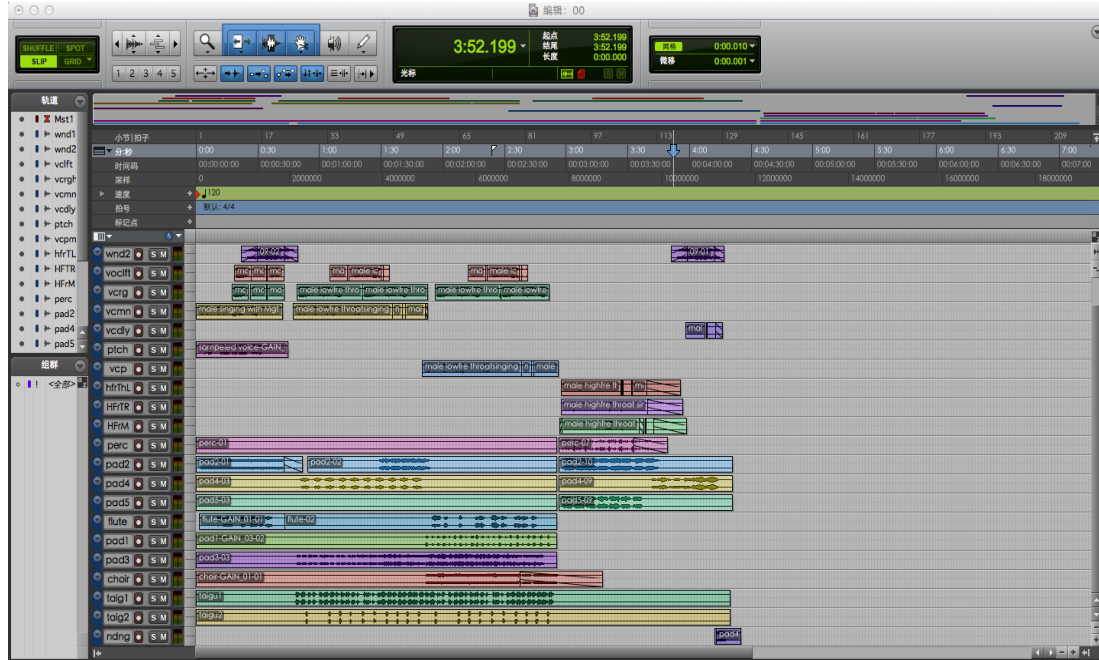
“melody” composed from the sounds of voice and wind, I chose instruments that could enlarge the desert image. I found a Middle East flute called Duduk in the Silk, EastWest software, and also added Taiko to build up a rich solid lower frequency to hold the Throat Singing. In the middle frequency range I added some sounds of pads and atmospheric sounds. In order to keep the vast feelings of the movement, I used mainly fifths and octaves. I also used a female choir the second time of the voice reading the poem to increase the range. When the high frequency Throat Singing appears, I switched the Taiko into Tablas, added a very soft sound in the middle so both of the two tones from the Throat Singing could be heard clearly.

I exported each track in Logic as a separate wave file and imported each file in the same Pro Tools file again, so that I could manipulate everything with the voices that I’ve already edited. I roughly adjusted the volume of each track, added reverb, EQ, compressor, delay for certain parts, designed the panning, and finally adjusted the volume of each track and the main output thoroughly. The process of creating the first movement established the method of creating the other three movements.

Figure 05 Producing *Sand* in Logic Pro



Figure 06 Mixing *Sand* in Pro Tools



B. *Cloud*

By following the same routine – Pro Tools, Logic Pro, Pro Tools, I finished the other three movements. The second movement is called *Cloud*. There aren't many tall buildings to block the view on the grassland because the original Mongolians live in yurts, so the clouds in the sky look marvelous. There are a number of Mongolian folk songs that praise the clouds and the sky. I wanted to use the female voice of the poetry as the melody of this movement. As the clouds are soft and misty, I added delay to small different parts of the female voices, exported the wave file and imported it back into Pro Tools. I was trying to use the echo sound to make an uncertain and mysterious background, which ended up existing throughout the piece.

I added a West African instrument Cora in the piece while the echo keeps going later on, and some sound effects of drums and spacy pad.

Figure 07 Music score of track Cora FX in *Cloud*

Cloud

Cora FX

Xinlei Chu

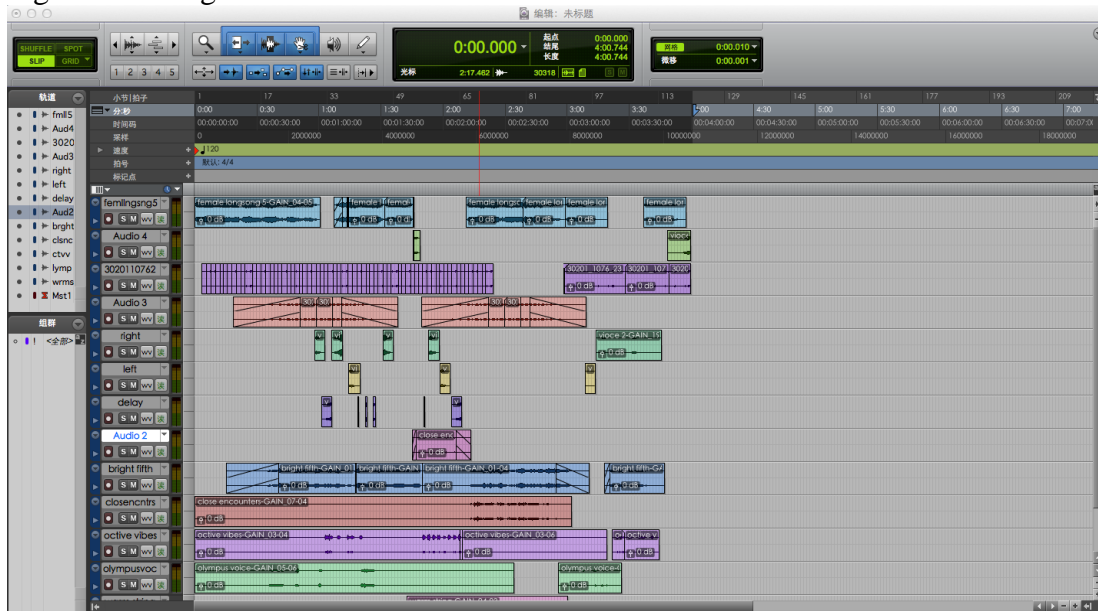
The musical score for Cora FX is written in bass clef with a 4/4 time signature. It consists of four staves of music. The first staff starts with a whole rest, followed by a quarter note G, a quarter note F, and a quarter note E. The second staff begins at measure 8 with a whole rest, followed by a quarter note G, a quarter note F, and a quarter note E. The third staff begins at measure 15 with a quarter note G, a quarter note F, and a quarter note E. The fourth staff begins at measure 20 with a quarter note G, a quarter note F, and a quarter note E. The score includes various musical notations such as rests, notes, and triplets.

C. *Water*

I named the third movement *Water*. In the poetry it says the “the running water that mothers the world is love.” The author definitely means those many rivers that run across the grassland. The Mongolians also mention the rivers in their folk songs regularly and call them “Mother Rivers.” I used the Mongolian Long Song throughout this piece to mimic the rivers running, at the same time I added another sound resource that I recorded – the sound of an actual river. Professor Lynn Purse has encouraged me to sample sounds that I found interesting. No matter if it’s a resource sound from the outside, sounds made by humans, or sounds of the animals,

they can all be used in concrete music pieces. I have gathered a sound resource bank that contains sounds such as the train, the sea, the background sound of a park, etc. I changed the river sound into something less obvious, I inserted a chorus effect and a compressor on top of the reverb. When the Long Song stops in the middle paragraph of the piece, I increased the volume of the river sound effect and added female choir as a background layer. Then I used several small syllable parts that I cut earlier from the Long Song voices, added delay and fade in and fade out, this effects that I built formed up a transition from the first part to the second part which is an actual Mongolian idyll.

Figure 8 Mixing *Water* in Pro Tools



D. Fire

Since the word “Mongolia” means the fire, I named the fourth movement *Fire* as the last element to represent the nation on horseback. I tried to use all of my

remaining materials in this movement. I used the small syllable “boom”, “lerch”. “ah-hey” that I cut from the poetry file as a percussion instrument, I used both the male and female poetry voices again and Long Song vocal material in the second paragraph, and I chose the Tibet bells, a metal-like pitched percussion sound to indicate the shining, sparkling lights of the fire. As the music goes on, the fire grows bigger, and it transforms into a spirit of a nation. Appearing for the second time, the Long Song, the Throat singing and the voices of the poetry emphasized the theme of the whole piece.

Figure 9 Mixing *Fire* in Pro Tools

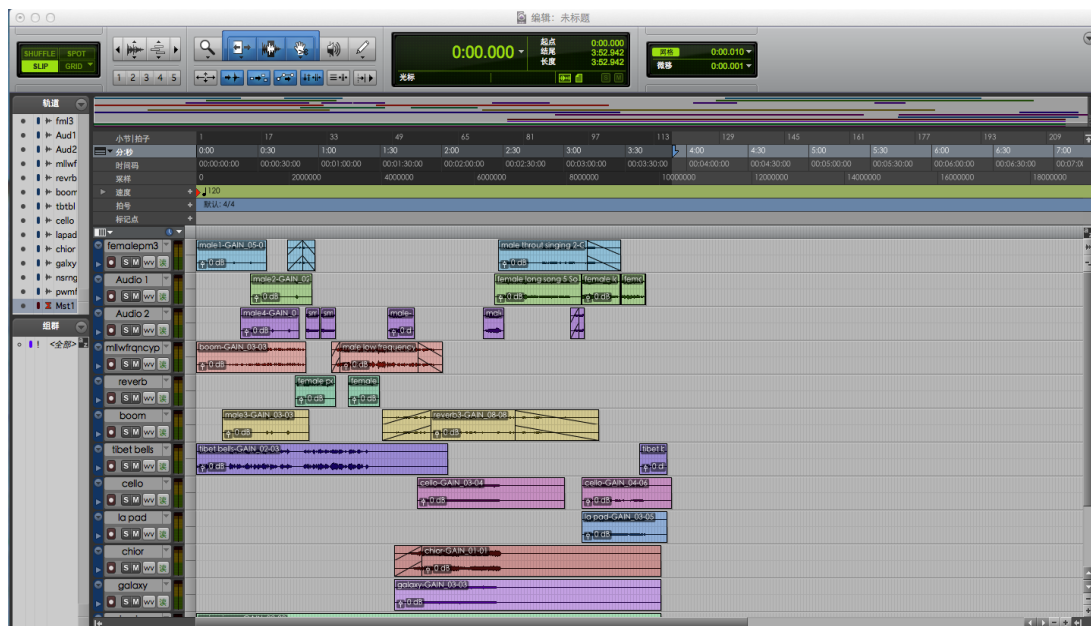


Figure 10 Music score of track Tibet Bells in *Fire*

Fire
Tibet Bells

Xinlei Chu

Tibet Bells

5

8

12

16

19

Conclusion

This piece combines both traditional and modern aspects. The sampled Mongolian Throat Singing and Mongolian Long Song existed since thousands of years ago, with technology from today and new composing techniques, I had the privilege to sample and develop them into something brand new. While carrying on the traditions, I wove my own understandings of the Mongolian culture, my emotions for the grassland and my memories from childhood into this piece. To keep the original peaceful, consonant flavour, I used mostly fifth and sixth intervals and avoided the dissonant chords. What's worth mentioning is that the four movements of this piece are all on free tempos, due to the fact that I didn't ask Alifu and Bai Yincang to record in a fixed speed. Therefore I borrowed the additive development idea from Phillip Glass and La Monte Young, let the music lead to wherever it's going, and kept very simple forms based on repetitions. I also used an amount of "call and response" to connect the voices and the instruments to give it more natural transitions. In the technology area I explored sampling waves into pitched instruments in Logic Pro; EQ, reverb, compressor, delay, panning and etc. in Pro Tools.

Chinese composer Qigang Chen, a student of Olivier Messiaen, published a paper called "A letter to young musicians" in 2013. In the paper he advises young composers and musicians to use the knowledge that we learned from Western musical theories on developing Chinese traditional music. There are so many art forms in Chinese traditional and folk music for us to study, synthesize and absorb from. Therefore, blending China's musical treasures with electronic and traditional western music in line with Qigang Chen's paper my goal and the heart and soul of this thesis.